IN THE CLAIMS

Please amend the claims as follows:

1-3. (Canceled)

4. (Previously Presented) A method comprising:
forming at least one metal adhesion layer on a surface of a die;
forming a diffusion layer on the adhesion layer;
forming a solder-wettable layer on the diffusion layer;
mounting the die on a substrate;
applying solder material to the solder-wettable layer;
positioning a surface of a lid adjacent the solder material; and
melting the solder material to physically couple the lid to the die.

5. (Original) The method recited in claim 4 wherein, in applying the solder material, the solder material has a relatively high thermal conductivity and a relatively low melting point.

6. (Original) The method recited in claim 4 wherein, in mounting the die on the substrate, the substrate comprises organic material having a relatively high thermal coefficient of expansion relative to that of the die.

7. (Original) The method recited in claim 4 and further comprising forming at least one metal or organic layer on the surface of the lid prior to positioning the surface of the lid.

8. (Original) A method comprising:
forming an adhesion layer of metal on a surface of a die;
forming a solder-wettable layer on the adhesion layer;
mounting the die on a substrate;
applying solder material to the solder-wettable layer;
positioning a surface of a lid adjacent the solder material; and
melting the solder material to physically couple the lid to the die.

9. (Original) The method recited in claim 8 wherein, in forming the adhesion layer, the adhesion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

10. (Original) The method recited in claim 8 wherein, in forming the solder-wettable layer, the solder-wettable layer comprises one of nickel and gold.

11. (Original) The method recited in claim 8 wherein, in applying the solder material, the solder material has a relatively high thermal conductivity and a relatively low melting point.

12. (Original) The method recited in claim 8 wherein, in mounting the die on the substrate, the substrate comprises organic material having a relatively high thermal coefficient of expansion relative to that of the die.

13. (Original) The method recited in claim 8 wherein, in positioning the surface of the lid, the lid comprises material from the group consisting of copper and aluminum-silicon-carbide.

14. (Original) The method recited in claim 8 wherein, in applying solder material, the solder material comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

15. (Original) The method recited in claim 8 and further comprising forming at least one metal or organic layer on the surface of the lid prior to positioning the surface of the lid.

16. (Original) The method recited in claim 15 wherein, in forming the at least one metal or organic layer, the at least one metal or organic layer comprises one of nickel and gold.

17. (Original) The method recited in claim 8 and further comprising:
forming a diffusion layer between the adhesion layer and the solder-wettable layer.

18. (Original) The method recited in claim 17 wherein, in forming the diffusion layer, the diffusion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

19. (Original) A method comprising:
forming an adhesion layer of metal on a back surface of a die;
forming a solder-wettable layer on the adhesion layer;
mounting another surface of the die on a substrate; and
applying solder material to the solder-wettable layer.

20. (Original) The method recited in claim 19 wherein, in forming the adhesion layer, the adhesion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

21. (Original) The method recited in claim 19 wherein, in forming the solder-wettable layer, the solder-wettable layer comprises one of nickel and gold.

22. (Original) The method recited in claim 19 wherein, in applying the solder material, the solder material comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

23. (Original) The method recited in claim 19 and further comprising:

forming a diffusion layer between the adhesion layer and the solder-wettable layer.

24. (Original) The method recited in claim 23 wherein, in forming the diffusion layer, the diffusion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

25. (Currently Amended) A method comprising:

forming an adhesion layer of metal on a <u>back</u> surface of a die<u>, the back surface being formed of silicon, silicon oxide, or silicon nitride</u>;

forming a diffusion layer on the adhesion layer; and

forming a solder-wettable layer on the diffusion layer.

26. (Original) The method recited in claim 25 wherein, in forming the adhesion layer, the adhesion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

27. (Original) The method recited in claim 25 wherein, in forming the solder-wettable layer, the solder-wettable layer comprises one of nickel and gold.

28. (Canceled)

29. (Previously Presented) The method recited in claim 25 wherein, in forming the diffusion layer, the diffusion layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.